The Flyway

Winter 2017

Quarterly newsletter for Billy Frank Jr. Nisqually and Grays Harbor National Wildlife Refuges

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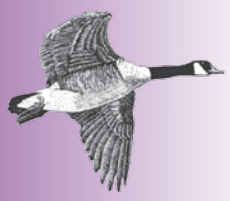

Save the dates!

The Grays Harbor Shorebird and Nature Festival will be April 28–29 in Hoquiaiam.

Finicky Frog Finds Help from Friends

By Marian Bailey, Refuge Wildlife Biologist, and Susie Hayes

Aldo Leopold once wrote, "If the land mechanism as a whole is good, then every part is good, whether we understand it or not… To keep every cog and wheel is the first precaution of intelligent tinkering." Scientists continue to find chemical secrets in living things that offer drugs to treat heart disease, cancer, pain, and that is just the beginning. All living things are part of a balanced and complex ecosystem. The removal of one species may create an unforeseen chain reaction affecting many other species. There are unique checks and balances in nature that, once disturbed, can have dire consequences on the whole ecosystem. Congress in 1973 created the Endangered Species Act recognizing that wildlife and plants "are of aesthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people." Here in our corner of the Northwest, we have a team of multi-agency biologists looking after the Oregon Spotted Frog's continued existence.

Oregon spotted frog with very fresh egg mass nearby. Vol Jan Wieser photo.

We all know the adage, "Don't put your eggs in one basket." Well it turns out the female Oregon Spotted Frog throws caution to the wind and does just that; lays all of her eggs once a season in one big mass, as many as 700! And many females will lay in the same area! These frogs are highly adapted to specific conditions, especially about where they lay their eggs. Coincidentally, The Black River Unit of The Billy Frank Jr. National Wildlife Refuge has just the right set of criteria for the survival of the Oregon Spotted Frog Oregon and very lucky for the frogs because Washington Department of Fish and Wildlife listed them as a state endangered species years ago. The US Fish and Wildlife Service gathered information on the frog for years and made a case in 2014 to federally list it as a threatened species, which gave them added protection and increased management emphasis.

The Black River Unit of Nisqually National Wildlife Refuge is located south of Black Lake near Olympia. The Unit was established in 1996 because the slow, flat nature of the river created a huge and unique floodplain ecosystem containing a mosaic of riparian forests, shrub swamps, bogs, and the river channel itself. Plus most important, are the seasonal and permanent emergent marshes composed of herbaceous vegetation—sedges, rushes, native wetland grasses, and other wetland dependent plants. During our winter rainy season, surface water spreads into the seasonally wet lowlands and can create ideal egg laying habitat for the Oregon Spotted Frog.

In February and March the weather begins to warm enough to initiate breeding

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On the Wing

By Glynnis Nakai

Why is hunting allowed on refuges? A question we hear frequently at this time of year when waterfowl season is open in the Nisqually River Delta. This may seem inconsistent with the term "refuge" as a safe haven; however, the refuge's mission is not only to protect and enhance habitat for wildlife but also to provide wildlife-dependent opportunities for the public. Hunting is one of the six priority uses on refuges as defined by the National Wildlife Refuge System Improvement Act of 1997, and is given equal consideration as wildlife observation, wildlife photography, fishing, education, and interpretation, as long as the activity is compatible and an appropriate use on the refuge. The decision to permit hunting is determined on a refuge-by-refuge basis and is dependent on a number of factors, including: biological integrity, diversity, environmental health, and effects on other refuge programs. Hunting can be a wildlife management tool to maintain a healthy, sustainable population without impacting the habitat they rely upon (e.g., over-browsing). Harvesting of wildlife on refuges is carefully evaluated and regulated to ensure there is a balance between population levels and wildlife habitat. Hunting is also a traditional recreation in America's heritage that still gets passed down through the generations.

Funds from hunting licenses, Federal duck stamps, and excise taxes on hunting equipment and ammunition help purchase and set aside millions of acres for wildlife. For example, Billy Frank Jr. Nisqually NWR was established in 1974 primarily with revenue generated from the sale of Federal Duck Stamps under the Migratory Bird Conservation Act. In addition, appropriations were authorized by the Wetlands Loan Act, from import duties collected on arms and ammunition for hunting, and receipts from the sale of refuge admission permits. The 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (USFWS, August 2017) reported 11.5 million hunters throughout the country with expenditures totaling $25.6 billion. These revenues support wildlife and habitat conservation efforts in every state and U.S. Territory. Recent Secretarial Orders (SO3347, SO 3356) focus on providing and enhancing opportunities for Americans to hunt and fish on public lands, where feasible, which in the end, supports conservation and the addition of lands into the National Wildlife Refuge System.

Fourth Graders: Get Your Every Kid in a Park Pass Today!

Are you a parent or grandparent of a fourth grader? Know a fourth grade teacher? Then we've got great news! Every fourth grader in the country qualifies to receive a free Every Kid in a Park pass. As part of the commitment to protect our nation's unique outdoor spaces and ensure that every American has the opportunity to visit and enjoy them, the Every Kid in a Park program allows fourth graders nationwide to obtain a pass for free entry for them and their families to more than 2,000 federally managed lands and waters nationwide for an entire year. Simply visit www.everykidinapark.gov to receive a voucher that can be exchanged at the Norm Dicks Visitor Center for a more durable plastic pass.

So why fourth graders? Research shows that children ages 9-11 are at a unique developmental stage in their learning where they begin to understand how the world around them works in more concrete ways. At this stage, they are receptive to new ideas and most likely to hold positive attitudes towards nature and the environment. By introducing fourth graders to public lands in their backyards and beyond at an early age, the innovative Every Kid in a Park program delivers a nationwide call to action to build the next generation of outdoor stewards of our country's spectacular and diverse federal lands and waters. Today, more than 80 percent of American families live in urban areas, and many lack easy access to safe outdoor spaces. At the same time, kids are spending more hours than ever before in front of screens instead of outside. The Every Kid in a Park program encourages valuable opportunities to explore, learn, and play in and on public lands that belong to us all.

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Save trees, think green.

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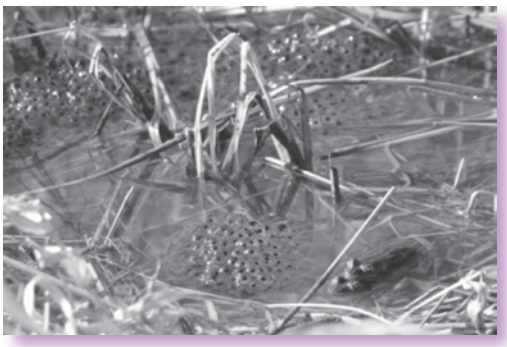
Oregon Spotted Frog

From page 1

and egg laying. Male frogs return to past breeding areas and vocalize with a series of low clicks or taps while under water or at the surface to attract the females. A bred female lays that huge number of eggs encased in a mass of jelly on very short vegetation growing in shallow, non-moving water. The sun plays a very important role in cold early spring weather as it warms the shallow water, low vegetation, and eggs, thus advancing egg development. With many developing egg masses concentrated in one micro-incubation site called clusters, the eggs become warmer than the surrounding water. These egg clusters often have thousands of eggs. There is yet another critical requirement for these eggs to develop into frogs: these shallow water areas must retain a connection to permanent water so the young of the year can swim to their new home during droughty summers.



A pair of Oregon Spotted Frog with newly laid egg masses nearby. One female lays one mass per spring. Photo by Kelly McAllister

In our local lowlands, eggs hatch into larvae the size of a thick pencil lead in about 23 days. It takes about 14 days for larvae grow into tadpoles thriving on a diet of algae and detritus. Tadpoles take more than four months to metamorphose into froglets (very small frogs that can hop small distances). All life stages of the frog (eggs, larvae, tadpoles, froglets, and adults) must live in water and must often move to stay in water. If wet areas become dry then any eggs, larvae, and tadpoles in that area run the risk of drying up and dying. So even as the rains stop and surface water evaporates, larvae, tadpoles, and froglets must be linked to deeper, permanent water such as a year round pond, a permanent emergent marsh, or a ditch that drains towards the river. As adults, Oregon Spotted Frogs are the most aquatic of all Pacific Northwest frogs, spending their carnivorous life in water feeding on invertebrates such as beetles, flies, spiders, water striders, and some vertebrates such as smaller frogs and tadpoles. It takes two to three years for a female to become a breeding adult. Unlike most frogs, the Oregon Spotted Frogs are active and forage all winter, and during an occasional freezing condition they will briefly hunker down underwater at the base of a dense clump of sedges or grasses.

The Oregon Spotted Frog is part of the intricate food web (a cog in a wheel) associated with wetlands and thus a host of usual suspects prey on the frogs from the time they are eggs all the way to adulthood. Here on the Black River Unit their main predators are: Great Blue and Green Herons, American Bitterns, Soras, Virginia Rails, Wilson's Snipe, Yellowlegs, occasionally raptors such as Northern Harriers and Short-eared Owls, native frogs, snakes, and native fish. This predation is normal and is not the reason these frogs are listed as threatened. Thankfully, no invasive bullfrogs are known to be established in the Unit—yet. These widespread non-native, huge frogs are voracious hunters, have been heard a few times in the area. But recently a large population of bullfrogs within 5 miles of the Unit became known to the Refuge Biologist and unfortunately are directly connected to the Oregon Spotted Frog areas via a tributary. The Fish and Wildlife Ecological Services Office oversees this federally listed frog and will be working with that landowner to reduce that bullfrog population.

Habitat loss within the Oregon Spotted Frog's range from British Columbia down to northern California has caused a historical decline of 90% of their population. The loss or modification of wetland vegetation and structure as well as modification or restriction of water flow by human actions has been the number one reason for the population decline. However, one of the main factors contributing to existing wetland decline is attributed to past practices of the United States Department of Agriculture which encouraged farmers to plant non-native reed canarygrass to 'improve' seasonal wetlands and provide cattle forage. With the reed canarygrass invasion the wetlands started their precipitous decline in the Pacific Northwest. This aggressive tall grass changed the natural structure of seasonal and permanent wetlands. Today, in the Black River Unit and surrounding area, most of the loss of Oregon Spotted Frog breeding areas is due to the rampant growth of this non-native grass. Additionally, diseases and contaminants such as pesticides have also contributed to a rapid decline of the number of amphibians worldwide.

Within the Black River Unit, the Refuge can contribute to the Oregon Spotted Frog's recovery. Land management tools include recreating or enhancing open, shallow ponds; creating linkages to permanent water; judicious use of grazing cattle; and targeted mowing to reduce reed canarygrass height during the dry season. These efforts have proven to be successful here; over the last 15 years there has been a tenfold increase in egg masses recorded. All Oregon Spotted Frog life stage needs are being met, resulting in increased frog survivorship which is directly correlated to the increasing number of egg masses over time. With a little help from friends, we hope the Oregon Spotted Frog will be a part of the delicate balance of essential wetlands here in the Northwest for years to come.

Marian has been a biologist at the Refuge for over 15 years and has worked closely with other biologists and agencies on the Oregon Spotted Frog recovery effort, something near and dear to her heart. She is retiring in January and this article is the biology and her story of the Oregon Spotted Frog.

Five Things I Learned at the Wildlife Refuge

A snapshot of my AmeriCorps service term

By Taylor Blomquist

How to tell an engaging story

Storytelling is powerful. It captures imagination and engages an audience. My favorite story to tell students is about the time I watched a Great Blue Heron dive into the grass to slurp up a garter snake like a noodle. I love watching students' eyes light up with excitement.

How to describe the location of something without saying "It's right there!"

Upon spotting a Great Horned Owl nestled in a Cottonwood tree, I gave details of how to spot the owl. Wildlife is excellent at hide 'n seek. It's an important skill set to learn how to articulate their location so that it's tangible for all ages to understand.

How to focus a room filled with 100 wiggly first graders

When students first walk into the Environmental Education Center, they are greeted by taxidermy birds that are all around the room. This is a great attention-grabber. As the students fill up the room I would ask students to raise their hands if they knew what types of birds were in the room.

How to get myself ready for a room filled with 100 wiggly first graders

Coffee.

How to be silly while educating (or how I learned to be myself as a teacher)

One day I found some animal puppets in the Education Center closet. We had a group of preschoolers coming in an hour, so I thought I would take a chance and use an owl puppet during my opening talk. It was a huge success! My favorite part was at the end of the field trip when a student raised their hand and asked "Can we say goodbye to the owl?" I brought the owl back out and the group of preschoolers took turns saying goodbye and hugging this owl that I had on my hand.

I know as I move forward with my career as an environmental educator the lessons learned at the Billy Frank Jr Nisqually National Wildlife Refuge will serve me well….. not to mention bring a big smile.

The Summer Lecture Series Needs Your Help

by Jennifer Cutillo

This past summer wrapped up the 30th annual Summer Lecture Series (SLS). The staff and the SLS volunteers at the Billy Frank Jr. Nisqually National Wildlife Refuge have seen a number of changes over those 30 years, but these fun and informative lectures have been a constant. One thing that has changed is the participation in these free events. Check out the data below.

Average attendees per lecture

2012.....102	2015.....93
2013.....103	2016.....79
2014.....104	2017.....43

So… yes, there is a general drop off in numbers, but there is also a dramatic decline summer of 2017. This got me thinking, what is the main cause for this decline? The scientist in me got fired up to dig into the problem. The economy, gas prices, increased traffic, lack of publicity this past year, and competing events have all most likely played a part in the decline. But where is the data? I began my research…

The "full house" topics of the past included: wolves, owls, ocean studies, octopus, whales, wildflowers, etc. Charismatic mega-fauna, specifically marine guys, and Pacific Northwest/Refuge related animals were big draws. The top presenters were professors, followed by biologists, authors, and scientists. There were only a few presenters who were not academics, which is where this lecture series has traditionally been focused.

But again, this was not enough data for me. I needed to know more. I contacted friends at Hawaii Volcanoes National Park about their long running evening lecture series. When I attended these 20 years ago, they were full houses. But now they too are seeing a decline in attendance. Why?

Won't you help me with my research? Did you attend the Summer Lecture Series in the past? Haven't been in a while? Care to share your reasons? What about those of you who attend regularly? Would you like to see new and different types of presentations? Any topics of interest that we have not covered? Is there a conflict with the time and day? Other issues we have not considered?

If you would send me an e-mail with SLS in the subject box and let me know your thoughts, I can add it to the data, and it will help us make informed choices and possible changes for the future. I'd like to get your emails soon so that I will have time to compile this new data. Feedback from the survey will appear in the spring edition of the *Flyway.* So look for positive changes as we gear up for next summer! Let's hope that the Summer Lecture Series has another 30 years to go!

Thank you for your help.

jennifer_cutillo@fws.gov

Looks Like a Duck, Dives Like a Submarine

By Peter Yager

From the back deck of the Visitor Center at the Billy Frank Jr. Nisqually National Wildlife Refuge, you may spot a small brown water bird that looks almost like a baby duck, with brown fuzzy feathers, large eyes, and a short bill. By winter, the summer's ducklings have grown to the point they can't be told apart from their parents. You're seeing a Pied-billed Grebe.

Pied-billed Grebe eating sickleback fish. Photo by J Whitehead

Despite being vaguely duck-shaped water birds, grebes aren't related to ducks at all, but fit into their own order, *Podicipediformes,* which comes from the Latin for "feet at the back". Grebes, like loons, have feet directly under their tails. This makes them much faster and more maneuverable in the water than ducks, but so off-balance on land they can barely walk. Also unlike ducks, grebes have separate toes on their very large feet. Their toes are ridged in the middle with grooved lobes on the sides. This is believed to help the grebe move through water like a boat's propeller.

Feet aren't the only adaptation that makes the pied-billed grebe a fantastic water bird. Grebes can adjust their buoyancy by squeezing out air trapped under their feathers and releasing air from internal air sacs, slowly lowering themselves in the water like a feathered submarine. They usually do this just before they dive. Also like a submarine, they can float comfortably with just its eyes and nostrils above the water. Grebes are so comfortable underwater that a startled grebe would rather dive than fly away from danger. In fact, some grebes in South America are almost completely flightless. They use their amazing diving ability to catch crayfish, salamanders, small fish, and other aquatic species underwater. One exceptional grebe was seen at the Visitor Center pond eating a bullfrog almost as large as it was! Grebes have a unique behavior of eating feathers, which they also feed to their chicks. It is believed that this is done to line their stomachs and protect them from being damaged by the shells and bones of their prey.

Pied-billed grebes can be found on the Refuge year round. In summer time, adult grebes will hide among emergent vegetation like cattails, where they build their floating nests on the water and raise their zebra-striped chicks. For the first few days of life, baby grebes ride on their parents' back and are tucked under the parents' wings when thezy dive.

In breeding plumage, they remain dull brown above and lighter brown below, but their bill develops the distinctive black ring that gives the species its name. Their feet, if you see them, are blue. Like most species of grebe, Pied-billed grebes have an elaborate courtship dance they perform: pirouetting above and beneath the water and jerking their necks at prospective mates.

Grebes, like loons, have feet directly under their tails. This makes them much faster and more maneuverable in the water than ducks, but so off-balance on land they can barely walk.

Besides Pied-billed grebes, Horned, Red-necked, Western, and Eared grebes can be found in the open water of the Nisqually estuary in the winter. These particular grebe species breed in fresh water wetlands in the interior of North America and winter in salt water on the coasts. They have longer more pointed bills than Pied-billed grebes, and in winter plumage, their necks and chest are lighter in color.

In the Northwest, Pied-billed Grebes are most commonly seen in winter when they come out into open ponds, like the one behind the Visitor Center where they can often be seen mingling with ducks. On your next visit to the Refuge, keep your eyes open for this small, round, remarkable birds!

Meet the New AmeriCorps Environmental Education Coordinators

By Jenn Cutillo

Terra Hauser

Terra grew up in North Bend and has stayed in the Pacific Northwest ever since, which has solidified her love for the local wildlife. She has been working with children for eight years, teaching swim lessons at the local pool and ski lessons at Alpental. She graduated from Quest University Canada in Squamish, BC. Though she originally wanted to pursue a career in public health, her goals changed when she took a course concerning biodiversity in British Columbia. She enjoyed the field work component the most, and began taking more specialized courses to pursue wildlife biology and conservation. In Terra's own words when asked about the AmeriCorps position: "I am excited to be at the Billy Frank Jr. Nisqually National Wildlife Refuge, and am enjoying the education program immensely!" In her free time, she likes to ski, hike, rock climb, and read.

P.S. An old friend of mine lives just down the road from Terra's parents. When I reconnected with her after many years, she said she's known Terra since she was a child. And she had no doubt that Terra will make an excellent member of the Education team. Small world.

Melanie Graeff

Melanie was born and raised just outside of Dayton, Ohio. She became interested in earth sciences like weather and geology at a young age and pursued taking many science classes throughout school. She is an avid soccer player, played as a goalkeeper all four years of high school. Then moved to Columbus, Ohio to attend Capital University, studied history and geology, and also played on the women's soccer team. Melanie graduated from Capital University in May, 2014 with a Bachelor's degree and planned to attend graduate school in the future.

In 2015, Melanie married her college sweetheart, Nate, who is an US Army officer stationed at Joint Base Lewis-McChord near DuPont, Washington. Because of the move cross country, Melanie applied and was accepted into the Masters of Environmental Studies program at the Evergreen State College in Olympia. Her thesis on the geologic changes of the Kautz Creek on Mt. Rainier due to climate change used a Geographic Information System (GIS) to help represent her findings on the subject. She graduated with a Master's degree in June 2017.

In Melanie's own words when asked about the Grays Harbor Education Coordinator position: "I found this job through AmeriCorps in September, 2017 and I immediately wanted to apply. After getting hired, I knew that I had a lot to learn about the Grays Harbor National Wildlife Refuge and about shorebirds. Now that I have been serving and learning as much as I can, I feel more comfortable with the material and am excited to share it with the kids. It is very rewarding to be able to teach kids and have them learn something new about their environment."

Woolly Bear Caterpillar Photo Correction

By John Keith

The Fall 2017 Flyway featured an informative article on the popular Woolly Bear caterpillar. Unfortunately, the accompanying photograph was of a Spotted Tussock Moth caterpillar with spiky white hairs that are never found on a "Woolly Bear". The Spotted Tussock Caterpillar is sometimes called a "Yellow Woolly Bear", but it is a different species than the legendary Woolly Bear. Here is the correct photo.

We hope you were not too confused by the photo mix-up and that you will continue to enjoy your encounter with these interesting insects and all the other wildlife at the Refuge.

New and Renewing Friends Membership/Winter 2018

Senior/Student ($15)

Caren Crandell
Janet De Grave
Glenis A. Nielsen
D. J. Snyder
Sally Wenzel
Margaret Tudor
Theresa Lynch
Gail Trotter
David Engle
Larry Russell
Gimi Bashaw
Lynne Edele
Gary Bostwick

Individual ($25)

Jean Gillmer
Sally Bennett
James Killingbeck
Nancy E. Henderson
Nicholas Young
Jon L. Bennett
Erica Engle
Leonard Elliott

Family ($50)

Karen Peterson
Marian Mehegan
Carol Mastronarde
Jennifer DeSelle-Milam
Karen Lewis
Donna Ewing & Sue Minahan
Candy Flanagan
Susan Stone

Supporting ($100)

John Cusick & Cristi McGinley
Elizabeth Hansen
Jean MacGregor
Mary Goodsell
Kody Wallace
David & Laura Nicol
Isabelle Bohman

Partner ($250)

Clyde & Jane Shiner
Bert & Sandy Stevens
Carol & Larry Else

Join Friends of Nisqually NWRC!

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City/State/Zip _____

Email _____

❏ Please send information on making Friends of Nisqually NWRC a beneficiary of my estate.

❏ Check here to receive an electronic version of *The Flyway* newsletter by email.

Individual/Family Memberships

❏ $15 Student/Senior
❏ $25 Individual
❏ $50 Family
❏ $100 Supporting
❏ $250 Partner
❏ $500 Patron
❏ $1000 Benefactor

Corporate/Business Memberships

❏ $250 Business Sponsor
❏ $500 Community Partner
❏ $1000 Sustaining Business
❏ $2500 Corporate Patron
❏ $5000 + Corporate Benefactor

Please make checks payable to: Friends of Nisqually NWRC, 100 Brown Farm Rd, Olympia, WA 98516

Your tax deductible contribution will help preserve the unique habitats, fish, and wildlife of the Nisqually Delta and the Grays Harbor Tideflats.

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Friends of Nisqually
National Wildlife Refuge
100 Brown Farm Road
Olympia WA 98516

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... conserving, protecting and enhancing fish, wildlife and plants and their habitats for the continuing benefit of the American people...

Planning a field trip to Billy Frank Jr. Nisqually National Wildlife Refuge?

Attend one of our free Field Trip Orientation Workshops to get all the tools you need to confidently guide your students on a meaningful outdoor learning experience. You will be introduced to our hands on indoor activities in our education center, hike the Twin Barns Loop Trail, and learn about one of the largest restoration projects in the Puget Sound! Refreshments will be provided.

Workshop dates:

Saturday February 10th 9am-1pm
Saturday March 3rd 9am-1pm
Wednesday March 7th 4pm-8pm

❃Only teachers who have participated in a field trip orientation workshop within the past three years are able to schedule a class for their field trip between May 15 and the end of the school year. Teachers who have attended a workshop since 2011 and scheduled a field trip within the past two years may continue to schedule field trips between May 15th and the end of the school year without re-taking the workshop.❃

Location: Environmental Education Center at Billy Frank Jr. Nisqually NWR (From I-5 Take Exit 114 and follow signs)

4 clock hours are provided free of charge through Pacific Education Institute.

To register: email **nisquallyeducation@fws.gov** to request a registration form.

For more information:

nisquallyeducation@fws.gov
Phone: (360) 753-9467
Fax: (360)534-9302